TOPIC 4

COMPUTER SOFTWARE BASICS

Systems Software vs Application software.

1. System Software.

- System software is the foundational software that Manages and Contras the hardware of a Computer. Examples include: Operating Systems (windows, Linux, MacOS), Utility Programs (antivirus, disk cleanup), Device Drivers (Printer driver, display driver), firmware (BIOS), Language Translators (compilers, assemblers).

purpose of system software

- Manages system resources (cpu, Memory, storage).
- Controls hardware operations.
- Ensures system security and Stability.
- Provides user interface (Gui or Command Line).
- Helps run and execute application software.

NB System software can run on its own and it does not depend on application software.

- In terms of installation and Complexity System software is more Complex and usually comes pre-installed with the Computer and it runs in the background.
- It has less interaction with the user.
- works behind the scenes.
- It consumes More memory because it

manages the entire system.

2. Application Software.
- It is designed to help the user perform specific tasks.

Examples:
Media players (VLC), Mobile Apps (whatsapp, instagram), Web browsers (chrome, firefox), Microsoft word (word processing), Games (FIFA, Need for speed)

Purpose of application software
- Helps users perform tasks like writing documents, browsing the internet etc
- Designed for solving specific user problems.

NB
- It depends on system software.
- Cannot run without an operating system.
- In terms of installation it is easy to install and use and runs only when the user launches it.
- It has high interaction with the user.
- Provides user friendly interfaces.
- It uses Memory only when running a specific program.

Compiling Systems

A Compiling system is a set of tools that translates high-Level Source code

into Machine code that a Computer can execute. The main tool is the Compiler
- In biostatistics A Compiling system is a set of programs used to translate Source Code written in Statistical or programming Languages (eg R, Python, SAS, C) into Machine-readable instructions.
In biostatistics and data analysis, Compiling systems ensure that:
- Statistical algorithms run efficiently
- Simulations and models execute correctly.
- Large datasets are processed quickly.

Role of Compiling Systems in Biostatistics

1. Running Statistical Models
2. Handling Large Datasets.
3. Ensuring accuracy.
4. Improving performance of statistical software.

5.

Hands on demo of Software Installation

A hands on demo of Software installation is a practical exercise students learn by directly installing Software on a Computer.

Importance in Statistics and Data Analysis

1. Enables use of Statistical tools.
2. Improves IT skills.
3. Ensures readiness for data analysis.
4. Builds Confidence.

General steps in Software Installation ('Hands-on)

1. Verify required Software.

2. Download the installer.
3. Launch the installer.
4. Follow the installation wizard.
5. Installation process
6. Completion.
7. Post-Installation setup.

Safety and Best Practices

1. Use Original Software.
2. Scan for Viruses.
3. Update regularly.
4. Check Compatibility.
5. Backup important data.